The effect of RG-180 cable length on purity monitor signal levels.

03Nov09 WFJ

Test done 30 Oct 2009 using material test station (Luke) with PM DAQ.

Reference cable, 1.4 Meters
Anode signal 12 mV
Cathode 10 mV
Lifetime 5.137 mSec

15 Meter cable (Percentage is from the average of reference cable levels before and after test cable run)
Anode 7 mV, 58.3%
Cathode 6 mV, 60%
Lifetime 4.439 mSec, 85.2%

Reference cable, 1.4 Meters
Anode 12 mV
Cathode 10 mV
Lifetime 5.274 mSec

Test done 02 Nov 2009 using material test station (Luke) with PM DAQ. Lifetimes decreasing due to Argon filter tests.

Reference cable 1.4 Meters
Anode signal 7 mV
Cathode 8 mV
Lifetime 1.847 mSec

10 Meter cable (Percentage is from the average of reference cable levels before and after test cable run)
Anode 4.5 mV, 66.7%
Cathode 5 mV, 64.5%
Lifetime 1.579 mSec, 87.2%

Reference cable, 1.4 Meters
Anode 6.5 mV
Cathode 7.5 mV
Lifetime 1.774 mSec

5 Meter cable (Percentage is from the average of reference cable levels before and after test cable run)
Anode 5.5 mV, 84.6%,
Cathode 6.5 mV, 86.7%
Lifetime 1.674 mSec, 95%

Reference cable, 1.4 Meters
Anode 6.5 mV
Cathode 7.5 mV
Lifetime 1.748 mSec

The effects of changes in cable lengths are not linear in this series of tests. This may be due to the instabilities in the material test station that where happening on the 2nd of November. It is recommended that this test should be redone with a stable LAr system and signal levels of 10mVolts or greater.